Lab Logistics Group GmbH switches to Bareos

# Lab Logistics Group: Bareos as Scalable Open Source Backup Solution

## Situation

The LLG is the central organization of a cooperative of 33 privately owned laboratory dealers in Europe, Asia, and Australia. Apart from the employees' Windows client machines the company in Meckenheim (North Rhine-Westphalia, Germany) runs various Linux servers and a MSSQL server with customer data. The LLG administrators are looking for a new backup solution for this heterogeneous IT landscape. It should take care of complete volumes (virtual machines) as well as some selected files that are especially important and require a quick restore time. The administrators also request a new backup/restore concept of the MSSQL databases.

Two buildings on-site each accommodate two Citrix XenServers and a Dell EqualLogic Storage cluster. The buildings are connected by optical fiber. Productive data of the servers are stored on different SAN clusters (load balancing). A separate cellar with water and temperature sensors contains a UPS system (30 kVA) as well as a tape library.

The administrators insist on transparency and future reliability. They want to make use of the storage systems (hard disks) as well as the tape library. Together with the certified Bareos partner dass IT GmbH, Cologne, the members of the computer center developed a new and extendable backup concept.

## Challenge

The Citrix XenServers and the Dell EqualLogic storage systems run various services (Windows Active Directory, MSSQL, SUSE Linux Enterprise Server, file server, application server, terminal server, and web server) as well as virtual desktops.

First, Bareos creates backups of one storage system and transfers the data to the second system in a different building. Next, Bareos backs up all data on tapes. The exact requirements are:

- Creating snapshots on one of the EqualLogic storage system
- Copying the snapshots to the second EqualLogic storage system
- Sorting of the backup copies (rename them, delete older versions, etc.)
- Creating backups of the second EqualLogic storage system on tapes (approximately 50 terabyte of data)
- Creating file-based backups of some important data (by extracting those files from the snapshots)

## Project Outline

### Customer

Lab Logistics Group GmbH
Am Hambuch 1
53340 Meckenheim

### Line of Business

Logistics Company

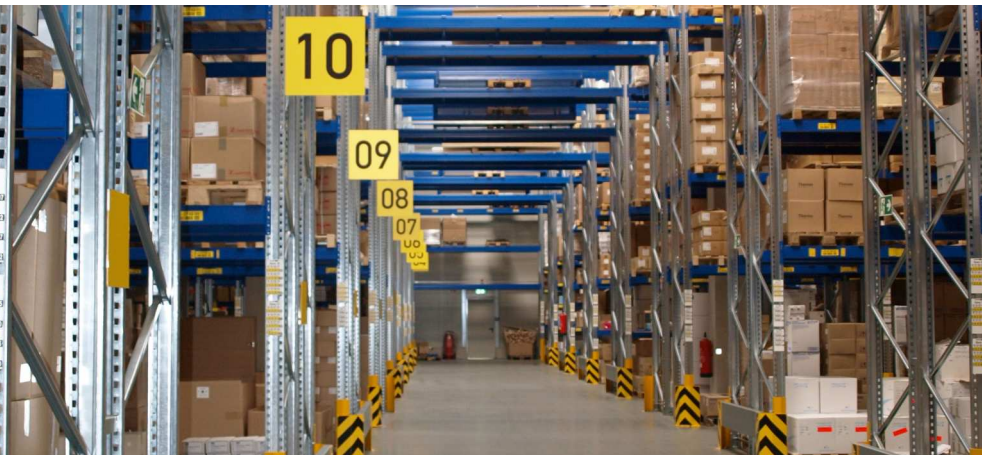
### Demands

The amount of data has been growing rapidly in recent years. These days, 96 tapes are necessary to store a full backup. Bareos has no problems to deal with the increasing demands, and it's easy to adjust the configuration accordingly.

### Solution

The implemented Open Source solution is reliable, flexible, and transparent. It saves time, money, and personnel.

Follow-up >>>





- Backups of the MSSQL server (by using the Bareos MSSQL plugin that allows for point-in-time restores)

## Solution

Bareos runs on two SLES 12 servers, one of them being a virtual machine on the EqualLogic storage cluster. This VM contains the Bareos Director. The second SLES 12 server contains the Bareos Storage Daemon and the Bareos File Daemon. This physical machine has a fiber channel adapter and is connected to two 48 slots IBM tape libraries (LTO-4 and LTO-5) – enough capacity for more than 50 terabyte of data.
Bareos is also installed on the XenServers and connected to the EqualLogic API. As soon as the backup software requests a snapshot, the XenServer triggers the EqualLogic storage system to create it. Bareos copies the snapshot to the second storage system in another building. Additionally, the physical Server connected to the SAN mounts the very same snapshot and backs up the files stored in the snapshot.
Other Bareos scripts are responsible for sorting the backup copies on the second storage system, including renaming them and deleting old backups. This storage system is connected to the tape library, so there is always a backup of the backup (in case a hard disk gets corrupted).
In order to back up a MSSQL server it is not enough to simply copy the databases. Instead, the Bareos MSSQL plugin talks to the Microsoft API to create backups. The integrity of the database backups is ensured by an automated restore to a second MSSQL server and verification of the database content. Nagios as monitoring software is notified about the result and alerts the administrators, if necessary.

## Results

The current setup uses hard disks (mirroring of the storage systems) as well as tapes. The tape library is in a room with water and temperature sensors. The system administrators configured three different backup methods in Bareos: full (once every month, during a weekend), incremental (six days per week), and differential (three times per month, during weekends). For now, the LLG stores the backups for a period of approximately five months.

## Customer Values

The new backup strategy includes all client and server machines with particular attention to the MSSQL server. It is flexible enough to deal with the increasing amount of data. Bareos is developed under an Open Source license and therefore transparent. Staff members of the LLG IT department can easily adjust the configuration, if necessary.

„Since our company has grown a lot over the last few years, we had to reconsider our existing backupconcept. As system administrator it is my responsibility to make sure that our data can be restored quickly in case of emergency. I sleep a lot better knowing that Bareos takes care of this.“

**Marcus Robichon,**
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